BLM

U.S. Department of the Interior
Bureau of Land Management

ENVIRONMENTAL ASSESSMENT
Quartz Draw Pipeline Extension

May 2016

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Worland Field Office

Environmental Assessment

Introduction

Identifying Information:
Title, EA number, and type of project:
Quartz Draw Pipeline Extension
DOI-BLM-WY-R010-2015-0035-EA

General Location of Proposed Action:
T. 48 N., R. 98 W., Sec. 21, 28

Name and Location of Preparing Office:
Worland Field Office
101 S. 23rd St.
Worland, WY 82401

Lease/Serial/Case file number:
Project Number 018551

Applicant Name:
Open Lock Ranch

Background Information:

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of issuing a Cooperative Range Improvement Agreement to install a stockwater pipeline extension and associated stockwater tanks in the Hillberry Rim Allotment No. 00579 (Map 1). The pipeline would be an extension of the existing Quartz Draw Pipeline, Project Number 906294, which is located predominately on private and Wyoming State land. This EA is a site-specific analysis of potential impacts that could result with the implementation of the analyzed alternatives.

The pipeline extension is designed to enhance water distribution for livestock and wildlife in the Fifteenmile Pasture of the Hillberry Rim Allotment, which has very limited upland water availability (Map 2). The only water source currently found in the Fifteenmile Pasture is the Webster #2 Reservoir in the north-east corner of the pasture. This reservoir is not reliable, only holding water during extreme wet periods. The reservoir is also located too far from the southern part of the pasture to provide an effective watering source for grazing livestock. This precludes the pasture from being grazed in a rotational grazing system. The proposed project, by providing additional upland water sources in the Fifteenmile Pasture, would allow for improved pasture management and increased flexibility of grazing use. It would provide for a more effective rotational grazing system in the allotment, resulting in more uniform utilization of the forage in the allotment. The pipeline would provide dependable water and improve livestock distribution on 3,083 acres of BLM and Wyoming State lands in the Fifteenmile Pasture. The proposed project would be funded, installed, and maintained entirely by the permittee.

The Hillberry Rim Allotment was formerly known as the Buffalo Creek Allotment, and the authorized permittee was Hillberry Cattle Co. In 1998, the WFO and Hillberry Cattle Co. signed the Buffalo Creek Allotment Settlement Agreement, which was developed to settle a lengthy litigation dispute over the stocking rate and management of the Buffalo Creek Allotment. The Settlement Agreement established

the current structure of the grazing permit for the allotment, which is now called the Hillberry Rim Allotment. An additional stipulation of the Settlement Agreement was:

> BLM agrees to explore and propose the possibility of developing water in the Fifteenmile Pasture and Center Pasture.

This proposal for the Quartz Draw Pipeline Extension was developed in part to address this stipulation in the Settlement Agreement.

Purpose and Need for Action:

The Purpose of this Federal Action is to respond to a proposal from the project applicant for a Cooperative Range Improvement Agreement to develop and maintain a sustainable water source for permitted livestock grazing in the Fifteenmile Pasture of the Hillberry Rim Allotment.

The Need for this action is BLM's responsibility to install, use, maintain, modify, or remove range improvements from public lands in a manner that is consistent with multiple-use management as described in 43 CFR 4120.3 and to review these types of projects in accordance with the National Environmental Policy Act of 1969.

Decision to be Made

The Authorized Officer (AO) must determine whether or not to issue a cooperative range improvement agreement to the applicant. The AO must identify specific terms and conditions that apply to the agreement. As stated in 43 CFR 4120.3-4, "cooperative range improvement agreements shall specify the standards, design, construction and maintenance criteria for the range improvements and other additional conditions and stipulations or modifications deemed necessary by the authorized officer."

Conformance

This action is subject to the following land use plan:

Name of Plan: Worland Approved Resource Management Plan (Worland Field Office ARMP)
Date Approved: September 2015

The Worland Field Office ARMP established the following Management Goals and Objectives for Livestock Grazing Management: GOAL: LR:10 Continue ecosystem benefits of herbivory by providing opportunities for livestock grazing to support and sustain local communities consistent with goals and objectives of other resources and overall land health. Objective: LR:10.3 Manage levels of livestock use in a manner that strives to maintain or restore permitted use based on forage availability consistent with multiple use.	
6212	Design range improvement projects, including vegetation treatments, to meet multiple-use objectives, mitigate impacts to other resource values, and meet allotment management objectives.
This action also conforms to the following management actions identified within the ARMP.	
Wildlife – Special Status Species; Greater Sage-grouse	
4106	Inside PHMAs Prohibit surface occupancy and surface-disturbing activities on or within a 0.6-mile

	radius of the perimeter of occupied Greater Sage-Grouse leks. The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse
4107	Inside PHMAs Prohibit disruptive activities on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30. Inside PHMAs Prohibit surface-disturbing and/or disruptive activities from March 15 to June 30 to protect Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat (1,021,583 acres). Apply this timing limitation throughout the PHMAs. Activities in unsuitable habitats would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis.
4109	Density of Disturbances: In PHMAs, the density of disturbance of energy or mining facilities would be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights (Appendix D, Greater Sage-Grouse Habitat Management Strategy (p. 271)). The one location and cumulative value of existing disturbances would not exceed 5 percent of habitat of the DDCT area. Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5 percent within the DDCT area using the DDCT process.
4112	In PHMAs, implement mitigation and minimization guidelines and required design features, including specific measures for Greater Sage-Grouse (refer to Appendix C, Required Design Features and Best Management Practices (p. 249)) as applicable and consistent with EO 2015–4 (Wyoming Office of the Governor 2015). Incorporate Greater Sage-Grouse specific measures into project proposals as required design features or mitigation for any authorized federal action, regardless of surface ownership.
4076	Allow water development projects in crucial elk winter range and in greater Greater Sage-Grouse nesting habitat with 10 inches or less annual precipitation only when adverse effects can be avoided, minimized and/or compensated based on site-specific analysis. Allow existing uses pending site-specific analysis on a priority basis.
Vegetation – Grassland and Shrubland Communities	
4027	Manage native plant communities (Map 3-15) in accordance with Wyoming Standards for Healthy Rangelands (BLM 1997). Use ESDs and other available information, resource objectives established in this RMP, and specific management practices to maintain or achieve the standards.
Soils	
1014	Analyze all surface-disturbing activities for suitability and impacts.
1020	Reclamation plans, stipulations, and/or mitigation and monitoring measures are required prior to approval of all authorized surface-disturbing activities. Develop specific objectives and timeframes for reclamation plans in coordination with stakeholders.
Water	
1028	In cooperation with stakeholders and within BLM's authority, protect groundwater during BLM activities and permitted actions through appropriate measures. These measures may be determined through methods such as predictive modeling, the results of monitoring, or project-specific analysis.

Cultural Resources	
5008	Pursuant to Section 106 of the National Historic Preservation Act of 1966 as amended, the National Programmatic Agreement (BLM, ACHP, and National Conference of SHPO 2012), and the State Protocol (BLM and Wyoming SHPO 2014), case-by-case reviews for specific undertakings require analysis and assessments of effects. Such analysis and assessment may reveal the need for additional restrictions beyond those specifically described in this RMP.
5015	Surface-disturbing activities associated with the construction and use of sites and facilities are subject to appropriate mitigation developed through implementation of the National Programmatic Agreement (BLM, ACHP, and National Conference of SHPOs 2012) and the State Protocol (BLM and Wyoming SHPO 2014).

Relationship to Statutes, Regulations, Plans or Other Environmental Analysis:

The Proposed Action is in conformance with all applicable regulations at 43 Code of Federal Regulations (CFR) Group 4100 and policies. The following are excerpts from 43 CFR relating to range improvements on public lands under the administration of the BLM:

43 CFR 4120.3-1 Conditions for range improvements.

> (a) Range improvements shall be installed, used, maintained, and/or modified on the public lands, or removed from these lands, in a manner consistent with multiple-use management.
> (b) Prior to installing, using, maintaining, and/or modifying range improvements on the public land, permittees or lessees shall have entered into a cooperative range improvement agreement with the Bureau of Land Management or must have an approved range improvement permit.
>
> 43 CFR 4120.3-2 Cooperative range improvement agreements.
>
> (a) The Bureau of Land Management may enter into a cooperative range improvement agreement with any person, organization, or other government entity for the installation, use, maintenance, and/or modification or permanent range improvements or rangeland developments to achieve management or resource condition objectives. The cooperative range improvement agreement shall specify how the costs or labor, or both, shall be divided between the United States and cooperator(s).

The primary regulation governing the analysis is 40 CFR 1500 (RE: The President's Council on Environmental Quality implementing regulations for procedural provisions of NEPA). The principal Bureau permitting regulations for livestock grazing are found in 43 CFR 4100. The principal statutes governing livestock grazing on public land are the Taylor Grazing Act of 1934, the Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978.

Grazing Management:
Properly managed livestock grazing activities and sage-grouse conservation are compatible. According to the U.S. FWS's March 2010 listing determination for Greater Sage-Grouse, the influence of livestock grazing on sage-grouse habitats varies across the range of the species. This variability of potential impacts is one factor used in determining the appropriate administrative level to prescribe proper livestock grazing management practices that would maintain or enhance localized habitat conditions for sage-grouse. It is the policy of BLM WY to promote proper livestock grazing management practices that

maintain or enhance desired sage-grouse habitat conditions. In order to ensure the necessary implementation of these types of practices and protections, this policy IM directs FOs to implement the following practices for all on-going and proposed permits for livestock grazing authorizations and activities in the context of the Wyoming Governor's core population area strategy for Greater Sage-Grouse. These measures have been adapted from and are in conformance with WO IM 2012-043 for grazing management guidance.

- Plan and authorize livestock grazing and associated range improvement projects on BLM lands in a way that maintains and/or improves Greater Sage-Grouse and its habitat. Analyze through a reasonable range of alternatives any direct, indirect, and cumulative effects of grazing on Greater Sage-Grouse and its habitats through the NEPA process.

Bighorn Basin Resource Management Plan (RMP) Final Environmental Impact Statement - Appendix W Utilization Levels in the Planning Area, May 2015:

Key grass species on key upland sites receiving 14 or less inches annual precipitation 50% or less utilization of current standing crop during growing season, and 60% or less utilization of current year's growth during dormant season.

"In other plant communities that are grazed during the growing season, grazing strategies would be designed to allow a combined forage utilization of 30 to 50 percent of the current year's growth. In all plant communities that are grazed when plants are dormant, a combined forage utilization of up to 60 percent of the current year's growth is allowed.

Scoping, Public Involvement and Issues:

Scoping

The Proposed Action was reviewed by an interdisciplinary team. Based on the size and routine nature of the proposed project, it was determined that further external scoping was not necessary.

Issues Identified

- Range Administration: How would the proposed project change livestock grazing management and livestock distribution within the Hillberry Rim Allotment?
- Rangeland Vegetation: How would installation of the pipeline extension and stockwater tanks alter the vegetative resources present?
- Soils: How would the installation of the pipeline alter the soil resources along the length of the route?
- Water Resources: How would the development of additional groundwater (connected non-federal action) indirectly impact soil and runoff conditions in the allotment? Would any adjacent wells be impacted as a result?
- Wildlife: How will the proposed livestock watering locations and subsequent changes in livestock grazing impact utilization levels and herbaceous residue and litter amounts important to sagebrush obligates and the maintenance of the sagebrush bunchgrass community.
- Cultural: How would the proposed surface disturbance affect cultural resources eligible or unevaluated for the NRHP?

Issues / Resources Dismissed From Analysis

Resources and features not present or present but not affected by the Proposed Action or Alternatives, and not discussed in this EA, include: Air Quality / Climate Change, Areas of Critical Environmental Concern, BLM Natural Areas, Greenhouse Gas Emissions, Environmental Justice, Prime or Unique Farmlands, Floodplains, Fuels / Fire Management, Geology, Fluid Mineral Resources, Energy Production, Hydrologic Conditions, Lands / Access, Native American Religious Concerns, Public Health and Safety, Recreation, Socio-Economics, Threatened, Endangered, Candidate or BLM Sensitive Plant Species, Wastes, Wetlands / Riparian Zones, Wild and Scenic Rivers, Wilderness / WSA, Woodlands / Forestry, Visual Resources, Wild Horses and Burros, Lands with Wilderness Characteristics, Travel and Transportation.

Paleontology: The project is within an area of soil development and vegetation growth with low potential for significant fossils. The underlying fossil bearing formation, which has a high sensitivity for significant localities, will not be affected.

Proposed Action and Alternatives

The alternatives were developed based upon the proposal of the applicant and concerns with impacted resources brought up the Worland Field Office Interdisciplinary Team. The alternatives were developed to address the impacts on public lands within the allotment, to consider the permittee's ranching resource goals and operations, as well as provide the opportunity for specific comparisons on which the decision maker could base a decision.

Description of Alternatives Analyzed in Detail

Description of the No Action Alternative:

Under the No Action Alternative the application for the Cooperative Range Improvement Agreement would be denied. The proposed pipeline extension to provide water in the Fifteenmile Pasture would not be built.

Description of the Proposed Action:

The Proposed Action would be to issue a Cooperative Range Improvement Agreement to the applicant. The agreement would authorize the Quartz Draw Pipeline Extension Project (Map 2). The project would convey water from the current endpoint of the existing Quartz Draw Pipeline on private land to two stockwater tanks located on public land in the Fifteenmile Pasture. The pipeline would be approximately 2.1 miles long. Approximately 1.2 miles of the pipeline would be located on public land, with the remainder located on private lands controlled by the applicant. The pipeline would be buried to a depth of approximately 1 foot below the soil surface. Installation and maintenance of the pipeline extension would be the responsibility of the applicant. See Addendum 1, Plan of Development for further details.

Design Features of the Proposed Action

The BLM can set forth design features that are necessary for the protection of the surface resources, uses and the environment; and for the reclamation of the disturbed lands. Design features are those specific means, measures, or practices that make up the Proposed Action and alternatives. Additional design features are added as needed to the Proposed Action or alternatives. Regulations, standard operating procedures, stipulations, and operator committed measures, and best management practices are usually considered design features. Design features are incorporated into the Proposed Action or alternatives to reduce or avoid adverse effects.

For the purpose of this analysis, the following design features are considered part of the Proposed Action. Also see attached Plan of Development, Appendix 1.

- Project construction shall be in accordance with the recommendations contained in the cultural resources inventory for the project area. The following standard stipulation would also apply:

  Cultural Resources, Standard Stipulation. The holder of this authorization shall immediately bring any objects or resources of cultural value discovered as a result of operations under this authorization to the attention of the authorized officer. The holder shall suspend all activities in the vicinity of such a discovery until notified to proceed by the authorized officer. The authorized officer will evaluate, or will have evaluated, such discoveries not later than five working days after being notified, and will determine what action shall be taken with respect to

such discoveries. The decision as to the appropriate measures to mitigate adverse effects to significant cultural resources will be made by the authorized officer after consulting with the holder. The BLM shall be responsible for the cost of any investigations necessary for the evaluation, and for any mitigative measures.

- The authorized officer may authorize the removal of vegetation or require the topsoil to be salvaged or the area re-seeded with certified weed free native vegetation based on site-specific construction impacts.

- Construction activity will not be conducted in times of frozen or saturated soil or during periods when watershed damage is likely to occur. No blading except to fix washed out portions of existing roads and level areas immediately surrounding tanks.

- Equipment will be cleaned and inspected for noxious weed species prior to entering the project area. The project area will be monitored for five years after construction to insure no noxious weeds have been transported to the site during construction. Any noxious weed infestations will be controlled. Use of pesticides will be done by a Certified Commercial Pesticide Applicator in accordance with an approved BLM Pesticide Use Proposal.

- Prohibition on surface disturbing or disruptive activities from November 15 to June 30 to avoid disturbance or displacement of wintering big game and nesting sagebrush obligates (sage-grouse, sage thrasher, Brewer's and Sage sparrow).

- Stockwater tank height will not exceed 24 inches, to allow muledeer and pronghorn young of the year access to water. Small animal escape ramps will be installed in the stockwater tanks, and water will be left in the tanks during the summer to benefit wildlife when cattle will not be using the allotment.

- Each tank will be fitted with on/off valves and floats.

- All surface and abandoned materials will be removed from the area and disposed of properly.

- The cooperator is responsible for coordination with other governmental agencies regarding any additional permits required, prior to project construction.

- The cooperator will inspect the construction area for the presence of utility facilities, both surface and subsurface, and notify the Wyoming One Call System (1-800-849-2476) before construction activities begin. The cooperator will use extra safety precautions when working near or around pipelines, power lines, power poles, underground cables, or other utility installations.

- Combined forage utilization in the area served by the stockwater tanks shall not exceed 50% of current year's growth. When forage utilization levels reach 50% of current year's growth, measured approximately one-quarter mile from the stockwater tanks, the stockwater tanks will be turned off and/or livestock will be removed from the pasture.

- Maintenance responsibility of the entire project is assigned to Open Lock Ranch.

Alternatives Considered but not Analyzed in Detail:

Water Hauling – This alternative would involve hauling water by truck to temporary stockwater tanks in the Fifteenmile Pasture. Access for a water truck is very difficult, especially during wet conditions. Significant road maintenance and upgrading would need to be performed for this option to be considered practical, which would cause further impacts to vegetation resources and disturbance to wildlife. In the long term, it is doubtful that this alternative would be more cost effective than the Proposed Action, considering the time involved to haul water, the cost of a water truck, and the cost of fuel.

Stockwater Reservoir Construction – Under this alternative, stockwater reservoirs would be constructed to improve livestock water availability in the Fifteenmile Pasture. The surface disturbance from constructing stockwater reservoirs would be similar to installing a pipeline as described in the Proposed Action. In general, stockwater reservoirs do not provide as reliable a source of water as wells and pipelines, since they are dependent upon runoff from precipitation events. Siltation from runoff reduces the water holding capacity of reservoirs over time. The cost of constructing stockwater reservoirs would be comparable to the proposed stockwater pipeline, but the useful life expectancy of stockwater reservoirs would be considerably less.

Affected Environment and Environmental Effects

This chapter characterizes the resources and uses that have the potential to be affected by the Proposed Action, followed by a comparative analysis of the direct, indirect and cumulative impacts of the alternatives. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Cumulative impacts result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.

Introduction

General Setting and Geographic Scope of the project area

The Hillberry Rim Allotment is located approximately 35 miles west of Worland, WY. The allotment encompasses approximately 15,000 acres, of which approximately 9,000 acres are public land, and approximately 6,000 acres are state and private lands (Map 1). The allotment is located within the 10 to14 inch precipitation zone. Elevation in the project area is approximately 5,500 to 5,800 feet. The terrain is primarily rolling hills dissected by drainages running into Gooseberry Creek to the south and Fifteenmile Creek to the north.

Resources Carried Forward for Analysis

Cultural Resources, Traditional Cultural Properties, Native American Religious Concerns

Issue(s) Identified
How would the proposed surface disturbance affect cultural resources eligible or unevaluated for the NRHP?

Affected Environment
The area of potential effect (APE) is defined by the Wyoming State Protocol Agreement between the BLM and the SHPO (State Protocol) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties (cultural resources eligible or unevaluated for the National Register of Historic Places), if any such properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

The APE was defined for the current undertaking to include the proposed surface disturbance, approximately 2.4 acres. A class III cultural resources inventory was completed for the APE which includes the proposed pipeline and stockwater tanks (BLM cultural project #010-2014-092). Approximately 30 acres were inventoried to determine effects to historic properties within the APE. No cultural resources were identified within the APE.

Direct and Indirect Effects
No Action
Under the No Action Alternative, the development of the proposed action would not occur. No resulting effects on cultural resources would be expected to occur beyond the current situation.

Proposed Action
Impacts occur to historic properties when a proposed project would directly or indirectly alter any of the qualities of that property that qualify it for inclusion in the NRHP. Potential impacts from the proposed action include; physical destruction of or damage to all or part of a property (direct impact) or introduction of visual or atmospheric elements that diminish the integrity of a property's significant features (indirect impact).

No historic properties were identified within the project's APE. Surface disturbance resulting from the proposed action, approximately 2.4 acres, would have no effect on known historic properties. As with the No Action alternative, the Proposed Action will have no effect on known historic properties. Because unknown cultural resources may be affected by surface disturbing activities, standard cultural stipulations were included in the project design features.

Cumulative Effects
Construction and development of range improvements impact cultural resources through ground disturbance, unauthorized collection, and visual intrusion of the setting of historic properties. Potential impacts to historic properties are mitigated under the Proposed Action. Since there would be no direct or indirect effects on contributing segments of known historic properties, there can be no cumulative effects.

Range Administration

Issue(s) Identified
How would the proposed project change livestock grazing management and livestock distribution within the Hillberry Rim Allotment?

Affected Environment
The current permittee for the Hillberry Rim Allotment, Open Lock Ranch, acquired the grazing preference for the allotment in 2013. The current structure of the grazing permit on the allotment was established in 1998. At that time, the allotment was named the Buffalo Creek Allotment, and the grazing preference holder was Hillberry Cattle Co. In 1998, the WFO and Hillberry Cattle Co. signed the Buffalo Creek Allotment Settlement Agreement (Settlement Agreement), which was developed to settle a lengthy litigation dispute over the stocking rate and management of the allotment. The grazing permit established by the Settlement Agreement authorizes the following livestock grazing use on the allotment:

181 Cattle	*03/01 to 04/30*	*76% Public Land*	*276 AUMs*
181 Cattle	*06/15 to 02/28*	*76% Public Land*	*1171 AUMs*
200 Sheep	*05/01 to 06/17*	*76% Public Land*	*48 AUMs*

<u>Terms and Conditions</u>
All livestock grazing use shall be in accordance with the Buffalo Creek Settlement Agreement, approved September 21, 1998. Up to 275 cattle may be on the allotment from June 15 to July 1. After July 1, livestock numbers may exceed 275 cattle, but total public, state, and private AUMs may not be exceeded (1900 AUMs total grazing use). As per the Settlement Agreement (page 2), sheep use will be held in temporary non-use for resource and management concerns. The allotment is on actual use billing. A certified actual use report will be submitted by the permittee at the end of the grazing year (February 28) from which an actual use grazing bill will be generated.

The allotment consists of four public land pastures: the Center Pasture, Rim Pasture, Highway Pasture, and Fifteenmile Pasture. The Center Pasture and Rim Pasture are loosely divided by a natural barrier, with some livestock drift expected between these pastures. The size of these pastures is shown below:

Center / Rim Pastures – 5,810 acres
Highway Pasture – 3,023 acres
Fifteenmile Pasture – 3,083 acres

The combined size of the pastures in the allotment is 11,916 acres. The Settlement Agreement stipulates that these pastures will be grazed between June 15 and May 1 in a deferred rotation grazing plan. The public land pastures are closed to livestock grazing between May 1 and June 15. A private pasture that is not part of the allotment is grazed during this period. The Settlement Agreement also specifies that forage utilization levels consistently exceeding 50% of current year's growth would not meet the objectives of the plan.

Direct and Indirect Effects

No Action

The No Action alternative would not change the manner in which livestock currently use the allotment. Currently 1,415 acres within the Fifteenmile Pasture, or 46% of the pasture, is suitable for livestock grazing use when the Webster #2 Reservoir has water available (Map 3). This is based upon the assumption that most livestock grazing use would occur within 1 mile of available water. When the Webster #2 Reservoir does not have available water, none of the acreage within the pasture would be available for livestock grazing. Under this alternative, the Center, Rim, and Highway Pastures would continue to receive the majority of the livestock grazing use on the allotment. The proposed tank locations and the area surrounding them would not receive the higher intensity grazing that would typically be associated with areas near water sources. The management flexibility allowed under the Proposed Action to graze all four of the pastures under a deferred rotation grazing system would not occur.

Proposed Action

The Proposed Action would change the way in which livestock currently use the allotment. Historically, most of the livestock grazing use has occurred in the Center, Rim, and Highway Pastures. Livestock grazing use only occurs in the Fifteenmile Pasture occasionally, when water is available in the Webster #2 Reservoir. When the reservoir has water available for livestock use, 1,415 acres of public and Wyoming State lands within the Fifteenmile Pasture, or 46% of the pasture, are considered suitable for livestock grazing (Map 3). This is based on the consideration that livestock make most grazing use within 1 mile of water. When no water is available in the Webster #2 Reservoir, none of the acreage in the Fifteenmile Pasture is considered suitable for livestock grazing.

Under the Proposed Action, an additional 1,456 acres would be suitable for livestock grazing. A total of 2,871 acres, or 93% of the pasture, would be available for livestock grazing. This is a 51% increase over the No Action alternative. Even when water is not available in the Webster #2 Reservoir, 1,878 acres of the Fifteenmile Pasture would be suitable for livestock grazing. Providing reliable water at upland locations in the Fifteenmile Pasture would enable more grazing use to take place in this pasture, thereby reducing grazing use in the other pastures. By making more of the acres in the pastures suitable for grazing, because they are closer to a water source, the overall stocking rate of the allotment would decrease.

Overall permitted livestock grazing use on the Hillberry Rim Allotment would not increase under the Proposed Action. Under the No Action Alternative, 1,447 AUMs of forage are currently permitted for livestock grazing use on the public lands within the allotment. Most of this forage removal is occurring on 8,833 acres within the Center, Rim, and Highway Pastures, with an additional 1,415 acres occasionally available within the Fifteenmile Pasture. Under the Proposed Action, the same amount of livestock

grazing use would occur, but it would occur on an additional 1,456 acres of land that are suitable for livestock grazing in the Fifteenmile Pasture.

Under this alternative, the four public land pastures within the allotment would all be grazed in a deferred rotation grazing system, instead of only three pastures being grazed in most years under the No Action Alternative. This was the intent of livestock grazing management on the allotment as stipulated in the Settlement Agreement. Livestock distribution on the allotment would improve under the Proposed Action.

Cumulative Effects
Geographic Scope
The area identified for cumulative effects analysis for range administration is the Hillberry Rim Allotment.

Timeframe of the Cumulative Effects Analysis
The timeframe for the cumulative effects analysis is from the time that livestock grazing began in the allotment in the early 1900's, and continuing for the useful life of the project, expected to be 30 to 40 years. Permitted grazing has been the dominant land use in the allotment. The natural climatic and geologic conditions have contributed to the current conditions.

Past, Present, and Reasonably Foreseeable Future Actions (RFFAs)
Historic and current livestock operations have contributed to the current conditions found within the analysis area, and it is expected that livestock grazing use would continue in the future.

No cumulative effects are identified for range administration. While the project would have lasting effects for flexibility of grazing management, it would not change the amount of livestock grazing use.

Rangeland Vegetation

Issue(s) Identified
How would installation of the pipeline extension and stockwater tanks alter the vegetative resources present?

Affected Environment
Vegetation on the Hillberry Rim Allotment is quite variable and dependent upon the range site. Basin Grassland / Shrub Communities are predominately found on sandy, clayey, loamy, and shallow loamy range sites. These sites are dominated by Wyoming big sagebrush, with an under story of bluebunch wheatgrass, western wheatgrass, needle-and-thread, and Indian ricegrass. These sites provide the majority of the livestock forage in the allotment. Salt Desert Shrub and Salt Bottom Communities are predominately found on saline upland and saline lowland type range sites. These sites are dominated by Gardner's saltbush, bottlebrush squirreltail, Sandberg bluegrass, and Indian ricegrass. No known threatened or endangered plant species have been documented in the allotment.

Historically the ecological sites within the allotment evolved with grazing from large ungulates and low frequency wildfires (NRCS 2014). Most growth occurs in May and June, accounting for 65% of the annual growth. Some growth occurs in late summer and fall when precipitation events provide moisture allowing for regrowth. This regrowth is variable depending on seasonal variation in weather and is not considered part of the critical growing season. The critical growing season is defined as the period beginning with initial growth in the spring until the plant has set seed and gone into senescence in mid to late summer.

The following is the growth curve of the plant communities found on the allotment expected during a normal year:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	25	40	10	5	10	5	0	0

The Worland Field Office performs Rangeland Health Assessments using Technical Reference 1734-6 "Interpreting Indicators of Rangeland Health" to determine if Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Land Administered by the Bureau of Land Management in the State of Wyoming (S&Gs) approved August 12, 1997 are being met. A Rangeland Health Assessment was recently completed for the Hillberry Rim Allotment (Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming, Hillberry Rim Allotment No. 00579, BLM 2010).

In 1992, two key management areas (key areas) for the purpose of vegetation monitoring were established on the allotment. Key areas are indicator areas that are able to reflect what is happening on a larger area as a result of on-the-ground management actions. Ecological site, soil type, vegetative community, topography, location of water sources, and livestock grazing history are some of the factors that are considered in the selection of key areas. One key area is located in the Highway Pasture, and one is located in the Center Pasture. No key area was selected in the 15 Mile Pasture, since this pasture has historically received less livestock grazing use than the other pastures due to the lack of reliable livestock water. Map 1 illustrates the location of the key areas. Line intercept cover transects (approximately 200 points per transect) were run in each key area to assess vegetative cover, litter, and bare ground. These line intercept cover transects were repeated in each key area in the summer of 2009, in support of the Rangeland Health Assessment. A summary of the cover data collected from each key area is shown in the table below:

Vegetation Monitoring Data		
Highway Pasture – Sandy 10-14"	**1992**	**2009**
Bare Ground	43%	7%
Litter	19%	43%
Bunchgrasses (Basal)	5%	15%
Bunchgrasses (Total)	9%	33%
Sagebrush (Total)	4%	13%
Total Vegetation (Basal)	32%	42%
Center Pasture – Loamy 10-14"	**1992**	**2009**
Bare Ground	56%	15%
Litter	23%	31%
Bunchgrasses (Basal)	6%	22%
Bunchgrasses (Total)	10%	37%
Sagebrush (Total)	4%	12%
Total Vegetation (Basal)	16%	44%
Bare ground does not include points that have canopy cover over bare ground. Litter refers to total litter – persistent and non-persistent. Bunchgrasses are desirable cool-season perennials (needle-and-thread and bluebunch wheatgrass).		

In addition to the cover data illustrated above, two rangeland health assessments were conducted (one at each key area) by an interdisciplinary team on 9/15/2009 using the 17 Indicators of Rangeland Health as described in BLM Technical Reference 1734-6.

Based upon the data collected at the key areas, as well as allotment-wide observations, cool season perennial bunchgrasses are found in abundance throughout the Hillberry Rim Allotment. In the Highway Pasture, cool season perennial grasses comprise 33% of the total cover. In the Center Pasture, these species comprise 37% of the total cover. Visual observations of the 15 Mile Pasture indicate similar vegetative composition. While areas of blue grama and Sandberg bluegrass can be found in parts of the allotment, they are not the dominant species. The cool season perennial bunchgrasses in all key areas exhibit good vigor and seed production. Rangeland conditions in the allotment have improved significantly under the existing management.

During the rangeland health assessment, the vegetative community observed in each key area was compared to the reference sheet for the corresponding ecological site, developed by the NRCS. The *Biotic Integrity* in each key area was rated as a "Slight to Moderate" departure from the reference sheet. Bare ground and litter were well within the guidelines described in the reference sheets. Most plant communities found on the allotment represent the Perennial Grass/Big Sagebrush Plant Community type.

It was determined that the rangelands within the Hillberry Rim Allotment are currently meeting the Rangeland Health Standard for Upland Vegetation (Standard 3):

> Data collected at the monitoring key areas in the allotment included vegetative cover transects, sagebrush canopy cover transects, and a Rangeland Health Assessment using the 17 Indicators of Rangeland Health. This data shows that the indicators (vegetative cover, plant composition, diversity and vigor, bare ground & litter, and erosion indicators) are appropriate for the ecological sites found on the allotment. Overall, the biotic community is stable and intact.

Direct and Indirect Effects

No Action

The No Action alternative would not change current vegetation conditions or the way in which they are used. Under this alternative, three of the four public land pastures within the allotment would be grazed in a deferred rotation grazing system every year, between June 15 and May 1. In some years, the northern part of the Fifteenmile Pasture would be available for livestock grazing, but the southern part of the pasture would remain unavailable for livestock grazing due to a lack of available water. In many years, the entire pasture would be unavailable for livestock grazing. The majority of the active plant growth period necessary for plants to produce seed would be completed before livestock grazing on public lands would take place. Since in many years a large part, or all, of the Fifteenmile Pasture would be unavailable for livestock grazing due to a lack of available water, the allotment would effectively be grazed many years as a three pasture deferred rotation grazing system. The Center, Rim, and Highway Pastures would be susceptible to grazing in late June and July every third year. While this level of grazing would not be expected to adversely impact plant growth, these pastures would receive more livestock grazing than under the Proposed Action. The remaining livestock grazing would occur during the dormant season, when little active plant growth is taking place. Dormant season livestock grazing allows for grazing use without stressing plants, and can help to invigorate plants by removing old and decadent plant material. Since the level of permitted livestock grazing would remain the same, and would largely continue to occur in three pastures, forage use levels in these pastures would be expected to remain the same. The Fifteenmile Pasture would continue to receive very little livestock grazging. Under this alternative, Rangeland Health conditions would be expected to remain the same in the Center, Rim, and Highway Pastures, and would likely improve in the Fifteenmile Pasture.

Also under this alternative, disruption and removal of vegetation from the actual installation of the pipeline and tanks would not occur. The proposed tank locations and the area surrounding them would not receive the higher intensity grazing that would be associated with areas near water sources. The management flexibility allowed under the Proposed Action to graze all four of the pastures under a deferred rotation grazing system would not occur.

Proposed Action
Under this alternative, the four public land pastures within the allotment would all be grazed in a deferred rotation grazing system, between June 15 and May 1. The majority of the active plant growth period necessary for plants to produce seed would be completed before livestock grazing on public lands would occur. Under the four pasture deferred rotation grazing system, each pasture would only receive significant livestock grazing during late June and July every fourth year. This grazing would not adversely impact plant growth. The remaining livestock grazing would occur during the dormant season, when little active plant growth is taking place. Dormant season livestock grazing allows for grazing use without stressing plants, and can help to invigorate plants by removing old and decadent plant material. Since the level of permitted livestock grazing would remain the same, but would occur over an additional 1,456 acres, forage use levels on the public rangelands land would be expected to decline. Due to improved livestock distribution, and a more effective rotational grazing system, Rangeland Health conditions would be expected to improve under this alternative.

The actual installation of the pipeline and tanks would disrupt and remove vegetation. The tanks are approximately 10 feet in diameter and livestock trampling would remove approximately another 30 feet of vegetation around the tanks. With 2 new tanks less than one acre of vegetation would be lost. Livestock would create some trails to the new tanks, which would also impact less than one acre of vegetation. Considering the size of the area served by the pipeline, this is a loss of less than 0.01%. The method used to lay the pipe (ripping with tractor) does not greatly disrupt vegetation. Generally, within one growing season the ripped area would vegetate and within 3-5 years there would be no evidence of the disturbance.

The surface disturbance associated with installing the pipeline and stockwater tanks could provide an opportunity for noxious weeds to become established in the disturbed area. These areas would be monitored for noxious weeds, and any infestations of noxious weeds would be controlled.

Mitigation
The authorized officer may authorize the removal of vegetation or require the topsoil to be salvaged or the area re-seeded with certified weed free native vegetation based on site-specific construction impacts.

Construction activity will not be conducted in times of frozen or saturated soil or during periods when watershed damage is likely to occur. No blading except to fix washed out portions of existing roads and level areas immediately surrounding tanks.

Equipment will be cleaned and inspected for noxious weed species prior to entering the project area. The project area will be monitored for five years after construction to insure no noxious weeds have been transported to the site during construction. Any noxious weed infestations will be controlled. Use of pesticides will be done by a Certified Commercial Pesticide Applicator in accordance with an approved BLM Pesticide Use Proposal.

Cumulative Effects
Geographic Scope
The area identified for cumulative effects analysis for range administration is the Hillberry Rim Allotment.

Timeframe of the Cumulative Effects Analysis
The timeframe for the cumulative effects analysis is from the time that livestock grazing began in the allotment in the early 1900's, and continuing for the useful life of the project, expected to be 30 to 40 years. Permitted grazing has been the dominant land use in the allotment. The natural climatic and geologic conditions have contributed to the current conditions.

Past, Present, and Reasonably Foreseeable Future Actions (RFFAs)
Historic and current livestock operations have contributed to the current conditions found within the analysis area, and it is expected that livestock grazing use would continue in the future.

Cumulatively, in concert with all other past, present, and RFFAs, the Proposed Action would result in insubstantial or potentially no impacts to vegetation within the analysis area. While the project would have lasting effects for flexibility of grazing management, it would not change the amount of livestock grazing use.

Soils

Issue(s) Identified
How would the installation of the pipeline alter the soil resources and runoff erosion along the length of the route?

Affected Environment
The proposed project area consists of an estimated 2.4 acres. The project area occurs primarily in soils which are typically droughty, well-drained, non-saline soils occurring as alluvium. Soil textures are typically loamy, with clay-loams also being present intermittently. Generally, most soil horizons occurring within this area conducive to successful reclamation following disturbance.

Loamy soil horizons are well-suited to storage for reclamation, and the degree to which these soil horizons are present, in comparison with clayey-loams, which are also likely to be present, would be dependent upon local site conditions and history. The ecological site (NRCS Range Site) most typically associated with the complex is a Loamy 10-14 inch precipitation zone (R032XY322WY), which is typically vegetated by Wyoming big sagebrush, yellow rabbitbrush, blue grama, Sandberg bluegrass, western wheatgrass, bluebunch wheatgrass, and other species.

The proposed action occurs along a road for 0.7 miles and also across undisturbed rangeland for the remainder of the length of the pipeline. The average slope within the proposed project area is approximately 4% with ranges from 0-10%.

Direct and Indirect Effects
No Action
Under the No Action alternative, no disturbance to vegetation or soils would occur as a result of trench excavation for the pipeline or associated disturbance from installation equipment traffic. There would be no change to offsite soils movement beyond what is already occurring as a result of historic disturbance. Utilizing the US Department of Agriculture (USDA) Water Erosion Prediction Project (WEPP) model with generalized soil types, nearby climate data for Hamilton Dome in Hot Springs County, and estimation of the slope of the project area it is probable that offsite sedimentation and runoff from these 2.4 acres is currently minimal or nonexistent. Under this alternative there would be no soil disturbance, compaction, alteration, or change in runoff that would occur.

Proposed Action
Under the Proposed Action, the pipeline would be installed along the surface, minor vegetation crushing would occur in the area surrounding the trench, and surface soil disturbance resulting from equipment traffic would occur where vegetation would be disturbed. The estimated width of disturbance would be 10 feet. The depth of the pipeline would be 12 inches. The design feature of ripping in the pipe would minimize soil profile horizon mixing when compared to open trenching.

Utilizing the WEPP model to estimate potential for offsite sedimentation in the segment of the water pipeline most likely to erode (longest contiguous segment running parallel to slope, assumed slope of 9%, which is the maximum likely to occur on the project), it is estimated that erosion would not be substantial over a 30 year period of time, even if precipitation were above normal. Estimated annual sediment loss would be between 0 and 0.25 tons/acre in the area identified as the most susceptible to erosion. The probability for runoff from the site was rated as low for the first three years and non-existent following reclamation.

Reclamation potential within the proposed project area for this soil complex is moderate.

There would likely be soil compaction that would be long term in the vicinity of the stockwater tanks. This would result from increased amounts of animal travel and associated hoof action on the upper profiles of the soil. This would potentially alter the ability of the soil to support the existing vegetation community in the immediate vicinity of the stockwater tanks.

Cumulative Effects
Geographic Scope
The area identified for cumulative effects analysis for soils is the same area.

Timeframe of the Cumulative Effects Analysis
The time frames for the cumulative effects that have occurred are post 1910 when grazing has occurred in the Cumulative Impact Assessment Area (CIAA). Permitted grazing has been the dominant land use in the watershed area. The natural climatic and geologic conditions have contributed to the current conditions in regard to surface runoff, offsite sedimentation, and alteration of the vegetation community.

Past, Present, and Reasonably Foreseeable Future Actions (RFFAs)
Historic and current livestock operations have resulted in some alteration to the vegetation and associated soil resources within the analysis area, and it is expected that livestock use would continue in the future.

Cumulatively, in concert with all other past, present, and RFFAs, the Proposed Action would result in insubstantial or potentially no impacts to soil resources within the analysis area.

Water Resources (Water Quality and Ground Water)

Issue(s) Identified
How would the enlargement of the Hillberry #1 Well (connected non-federal action) indirectly impact soil and runoff conditions in the watershed? Would any adjacent wells be impacted as a result?

Affected Environment

Watershed: The proposed Quartz Draw pipeline extension is located in the Gooseberry Creek and Fifteenmile Watersheds level 6 sub-watersheds as outlined by the United States Geological Survey (USGS). The existing well to supply the pipeline is located on a terrace that is adjacent to Gooseberry Creek on private land. The pipeline travels north along the Hillberry Rim and the across Jake Sellers

Draw on private land and traverses north to tank locations in the allotment (Map 1). The channel crossing is a Rosgen G type channel. Rosgen G type channels are defined as the "G" or "gully" stream type, which is an entrenched, narrow, and deep, step/pool channel with a low to moderate sinuosity. Channel slopes are generally steeper than .02, although "G" channels may be associated with gentler slopes where they occur as "down-cut" gullies in meadows. The "G" stream type channels are found in a variety of land types to include alluvial fans, debris cones, meadows, or channels within older relic channels (Rosgen, 1996).

Groundwater: The Hillberry #1 Well (Permit #21697) is the water source that currently supplies the existing stockwater tanks. The well is a private well with the enlargement which consists of two new proposed tanks and pipeline located on public land. There are no other domestic or livestock water wells within a one mile radius of the proposed site.

Direct and Indirect Effects

No Action

Watershed: As discussed above in the soils section, there would be no surface disturbance for the length of the route. The current soil and runoff conditions would remain in their current conditions. The WEPP model discussed in the soils section indicated that runoff from the area is currently minimal or non-existent.

Groundwater: Under this alternative, the BLM would not be a co-applicant on the Wyoming State Engineer water filing enlargement and the pipeline and tanks would not be constructed on public land.

Proposed Action

Watershed: There would be a short term disturbance in the floodplain area where the pipeline crosses Jake Sellers Draw. This would have duration of 1-2 years and would impact an area approximately 30 feet long by 3 feet wide. The other disturbances from the pipeline would occur in upland areas in the watersheds along the distance of the route and surrounding the tanks. The infiltration rates from compacted bare surfaces would be reduced and the amounts of surface water runoff from the route and pad area would be increased. These disturbances are analyzed in the soils section of the document. One indirect impact from this alternative is the increased amounts of sediment generated from disturbed areas that impact the water quality of runoff in the sub-watershed. The amount 0-0.25 tons/acre would be expected following storm events capable of producing runoff.

Groundwater: According to field observations and a search of permitted wells in the Wyoming State Engineer's online database, there are no wells located within a one mile radius of the well. Therefore no additional wells would be impacted. The amount of diversion is minimal and will not impact the regional water levels of other wells in the region completed in the water producing aquifer. The enlargement permit has been approved by the Wyoming State Engineer's office for the additional points of use from the well. The total volume or amount used is not expected to change from the current permit.

Cumulative Effects

The overall amount of ground water used for livestock use would increase. Other water development projects in the Gooseberry Creek sub-watershed have increased the consumption of groundwater and surface water resources. All of the water development activities are permitted by the Wyoming State Engineers Office and managed according to Wyoming water right statues and the Bighorn Basin Water Plan (WWDC 2010). Other oil and gas related activities have occurred in the watersheds; however these are not connected to this current action.

Figure 1- CIAA Table

Cumulative Effects Table impacts Quartz Draw Pipeline Enlargement					
Alternative	**Cumulative Impact Assessment Area (CIAA)/Geographic Scope**	**CIAA/Temporal Scope**	**Past-Present Actions**	**Future Actions**	**Direct-Indirect Effects**
No Action	**Gooseberry Creek and Fifteenmile Creek Watershed**	**10+ years (length of development)**	**No additional water development and distribution from the Hillberry #1 well.**	**Continued grazing use in the watershed with new water sources. No additional development of natural water sources in the watershed.**	**No disturbance of 2.4 acres in the watershed. No additional water tanks, current grazing use patterns which influence erosion in the watersheds.**
Proposed Action	**Same**	**10 + years (length of development)**	**Drilling of Hillberry #1 Well (non-connected action). Installation and enlargement of water pipeline from the well.**	**Continued grazing use in the watershed. Increase in the distribution of available water sources in the allotment and watershed.**	**Temporary disturbance of 2.4 acres in the watershed. Placement of 2 additional water tanks, change in grazing use patterns which influence erosion in the watersheds.**

Fish/Wildlife (Including Threatened, Endangered, Candidate and BLM Sensitive Species)

Issue(s) Identified

How will the proposed livestock watering locations and subsequent changes in livestock grazing impact utilization levels and herbaceous residue and litter amounts important to sagebrush obligates and the maintenance of the sagebrush bunchgrass community?

Affected Environment

This allotment provides habitat for several big game species, as well as many other non-game and special status wildlife species, during all seasons of the year. The allotment is predominantly rolling sagebrush grasslands with some rimrock and scattered juniper and limber pine along the western edge, and more incised drainages, with a mix of grassland and sagebrush patches at the north and eastern portions. The north, west and southeast portions provide crucial winter range for mule deer, and the central and eastern rolling sagebrush grasslands are mapped as crucial winter range for antelope (Map 4). These continuous large patches of rolling sagebrush habitats throughout the allotment also provide wintering areas, breeding, nesting, and early brood rearing habitats for sage-grouse. There are two occupied leks within the allotment. Hillberry Rim 2 (GC-51) is located on private land towards the center of the allotment. The other, Jake Sellers Draw (GC-14), is on public land in the northern end of the Fifteenmile Pasture of the allotment. The entire allotment is mapped as Priority Habitat Management Area (PHMA) for sage-grouse. There are also wintering areas near both of these leks that have been identified. Both wintering and breeding habitats have been documented through inventory and monitoring efforts. Nesting and late brood rearing habitats have not been as well documented, however in an analysis of sage-grouse studies conducted in 7 areas in Wyoming since the mid-1990s, Holloran and Anderson (2005) found that 45% of nests were located within 2 miles (3 km) of the lek where the hen was bred, and 64% of the nests were within 3 miles (5 km) of the lek. Therefore viable nesting habitat surrounding these leks, within and nearby the Hillberry Rim Allotment, are considered occupied nesting habitat. Upland herbaceous communities in proximity to leks should typically have adequate standing herbaceous residue going into the sage-grouse nesting season in April and May for nest concealment. An analysis of sage-grouse nest site selection from 7 study areas in Wyoming indicates that residual grass height should be a minimum of 3.9 inches (10 cm) in Wyoming big sagebrush dominated sites (Holloran et al. 2005) compared to 7 inches (18 cm) minimum live perennial herbaceous vegetation height recommended by Connelly et al. (2000) in breeding habitats. Hens nesting in these cover conditions experience higher nest success rates

than those nesting under inferior cover conditions (Delong et al. 1995, Holloran et al. 2005). These sagebrush habitats also likely provide breeding, nesting and foraging habitat for other sagebrush obligate bird species like the sage thrasher, Brewer's sparrow and loggerhead shrike. Although they have not been documented through formal inventory efforts, these are three BLM sensitive species that are common residents of these sagebrush communities in the area, and are the only other sagebrush obligate BLM sensitive species likely to occur within this allotment. These sagebrush habitats comprise approximately 50% of the allotment.

Direct and Indirect Effects

No Action

Under the no action alternative there would be no direct impacts from the water pipeline installation and construction. Livestock would continue to graze the proposed pipeline area, but impacts in the form of livestock concentrations would continue to be associated more with the pre-existing watering location in the central and southern portions of the allotment and not the sagebrush bunchgrass habitats where the two tanks are proposed.

Proposed Action

The surface disturbing and disruptive activities associated with the proposed livestock pipeline installation may cause short term disturbance and displacement to resident wildlife species mentioned above. Other long term impacts to wildlife would result after installation, primarily the subsequent livestock grazing which will be discussed later. At the two new stock tank location there will likely be associated activities and disturbances like; increased raptor perching and predation, increased livestock use and concentrations, livestock trailing, undesirable vegetation infestations resulting in a less desirable vegetative community which would result in the disturbance or displacement of some wildlife species. The livestock tanks and pipelines would result in some level of habitat removal, habitat fragmentation and reduction in habitat quality, particularly if disturbed areas are colonized by invasive or noxious plant species.

Implementation of this alternative could provide additional watering locations for late summer/early fall resident antelope and mule deer. Most of the big game use of this proposed project area occurs during winter months when wildlife primarily use snow to meet water needs, and most small animals and upland game birds gain their water requirements from snow or forage. Because the proposed tanks will be 24 inches above ground level, use by small mammals and most avian species is not anticipated. It is generally held that here in the arid west, water sources are a limiting factor for some wildlife species, in particular big game. All water locations are potentially important for wildlife and can change underutilized habitat into more viable habitat. In general most big game species will travel up to 2 miles for water. During average precipitation years and conditions both of the proposed livestock tanks are less than 2 miles from existing water sources that are presently accessible to wildlife. Under drought conditions some of these existing water sources could dry up and render the proposed water sources beneficial to wildlife, particularly in the dry season, late summer and early fall. The addition of these proposed water sources have the potential to increase the use of this area by big game, particularly during drought.

Both new tank locations would be new water locations on BLM surface, and both are approximately 1 mile east and northeast of the Jake Seller Draw lek within sagebrush or sage-grouse nesting habitat. And both of the proposed livestock watering locations are within PHMA sage-grouse habitat.

The development of new watering locations for livestock would likely decrease livestock grazing impacts around existing water source locations primarily in the central pasture, and increase livestock use in the uplands around the new tanks. Livestock utilization levels will likely increase around the new upland tank locations at approximately 1 to 1.5 miles from each tank, depending on surrounding topography. If

these increases in utilization exceed the desired use levels an inadequate amount of residue for sage-grouse nesting cover and habitat maintenance will result. And if these use levels are exceeded repeatedly, decreases in both habitat quality and ecological condition will result. According to research conducted in sagebrush-steppe, adherence to light-utilization standards is the most dependable way to ensure a healthy plant community (Cagney and others, 2010). Conclusions from a review of the effects of herbivory on bluebunch wheatgrass (Pseudoroegneria spicata), an important sagebrush associate, indicated (1) utilization levels of 30 to 40 percent under deferred grazing systems is a recommended maximum use-level if maintaining the community is desirable; (2) onetime growing season utilization levels of more than 50 percent have long-term (up to a decade) impacts on plant vigor and productivity (even if followed by complete protection); and (3) grazing following the growing season has little effect, although yield reductions the following year may occur if grazed to 2-inch stubble height (Anderson, 1991).

The proposed upland tanks could result in livestock utilization levels that would diminish the habitat quality and impact sage-grouse nesting, as well as habitat use by other big game and avian sagebrush obligates. For the sagebrush bunchgrass rangelands within 1.5 miles of the proposed new tank locations within PHMA area sage-grouse nesting habitat the Grass Creek RMP requirement is "a combined forage utilization of 30 to 50% for growing season use, and 60% for dormant season use". The requirement of the IM No WY-2012-019 is to "maintain and/or improve Greater Sage-Grouse and its habitat". If the above use levels are not met consistently, particularly in the blue bunch wheatgrass sites, habitat quality could diminish over time. The herbaceous residue in this area is in high demand given the combined forage needs of nesting sage-grouse and livestock. In order to maintain and/or improve the sage-grouse habitat as well as provide for other species dependent upon the sagebrush/bluebunch wheatgrass communities the prescribed utilization levels would have to be adhered to and monitored.

Mitigation

To avoid disturbance and/or displacement to wintering mule deer and sage-grouse wintering areas and nesting or early brood rearing habitats within the PHMA, require that all surface disturbing and disruptive activities associated with the proposed livestock pipeline installation be prohibited from 11/15–4/30 for wintering big game, 12/1–3/14 for sage-grouse wintering areas, and 3/15–6/30 for sage-grouse nesting and early brood rearing, (combined Timing Limitation Stipulation (TLS) is 11/15 - 6/30). The application of this seasonal stipulation will also protect the other special status species avian sagebrush obligates mentioned above from possible nest destruction or nest abandonment.

To avoid potential livestock grazing impacts to sage-grouse nesting habitat within 1 – 1.5 miles around the 2 proposed stock tank locations the BLM should identify 2 new monitoring locations on BLM, approximately .25 miles from each new tank, where utilization limits mentioned above will be monitored. When use levels have been reached, livestock would be removed from pasture and/or water tanks turned off. If repeated over utilization is observed, tanks will be turned off and/or removed until herbaceous production, frequency, and composition are back to pre-pipeline conditions.

Cumulative Effects

Cumulative impacts are impacts which are likely to occur due to the Proposed Action in combination with other ongoing activities in the area, recently constructed projects in the area, and projects which would likely be implemented in the area in the near future. Pursuant to NEPA, the BLM must consider the cumulative impacts of the Proposed Action in conjunction with other ongoing range projects in the area. In addition, unrelated activities within the overall project area which might have an adverse impact upon existing natural resources in the area and, consequently, which would further contribute to the overall degradation of the human environment must be considered in the analysis of cumulative impacts as well.

Activities on the public lands other than grazing that may contribute to cumulative effects include fluid minerals. The project area is open to oil and gas leasing and historically has had a moderate level of interest, exploration and development, but presently there are no active wells in the area.

Cumulative effects would also occur to vegetation resources as a result of indirect impacts. One indirect impact to native vegetation is the potential import and spread of noxious weeds around the project area and along roadways, particularly along the pipeline route and near stock tanks where the greatest livestock impacts are expected. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts, thus reducing the habitat quality and lengthening the duration of the impact. Weed mitigation applied to the construction and reclamation would minimize the impacts of noxious weeds.

There are no known additional, reasonable foreseeable actions that would affect the resources in the proposed project area, other than the same kinds and levels of land uses that have historically taken place.

Tribes, Individuals, Organizations, or Agencies Consulted:

List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Open Lock Ranch	Project Applicant	
WGFD	DDCT	Within threshold limits
SHPO	Consultation	No Historical Properties Present

List of Preparers

The following specialists were involved with reviewing this project.

Name	Title
Cam Henrichsen	Rangeland Management Specialist
Tim Stephens	Biologist
Marit Bovee	Archeologist
Jared Dalebout	Hydrologist
Adam Babcock	Outdoor Recreation Specialist; Recreation, VRM, Spec. Designations
Monica Goepferd	Engineering
Karen A. Hepp	T&E Plants
Leslie Coleman	NRS; Soils/Weeds
Alex Jensen	Geologist
Darci Stafford	NRS; Fluid Minerals
Franklin Sanders	PE
Yvonne Warren	NRS, Fuels
Jim Gates	Forester
Holly Elliott	P&EC
Nancy Patterson	Outdoor Recreation Specialist; Travel Management

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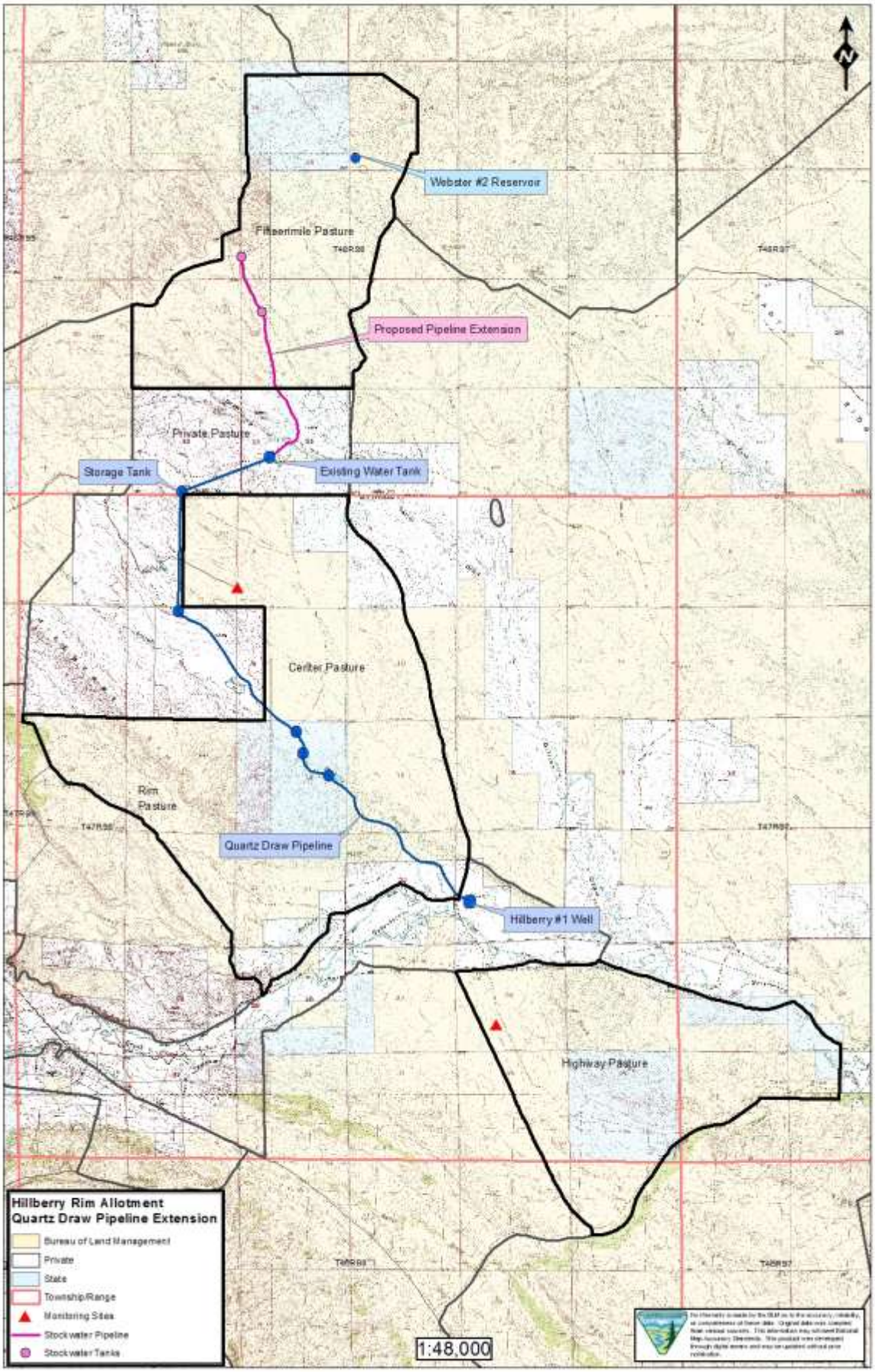
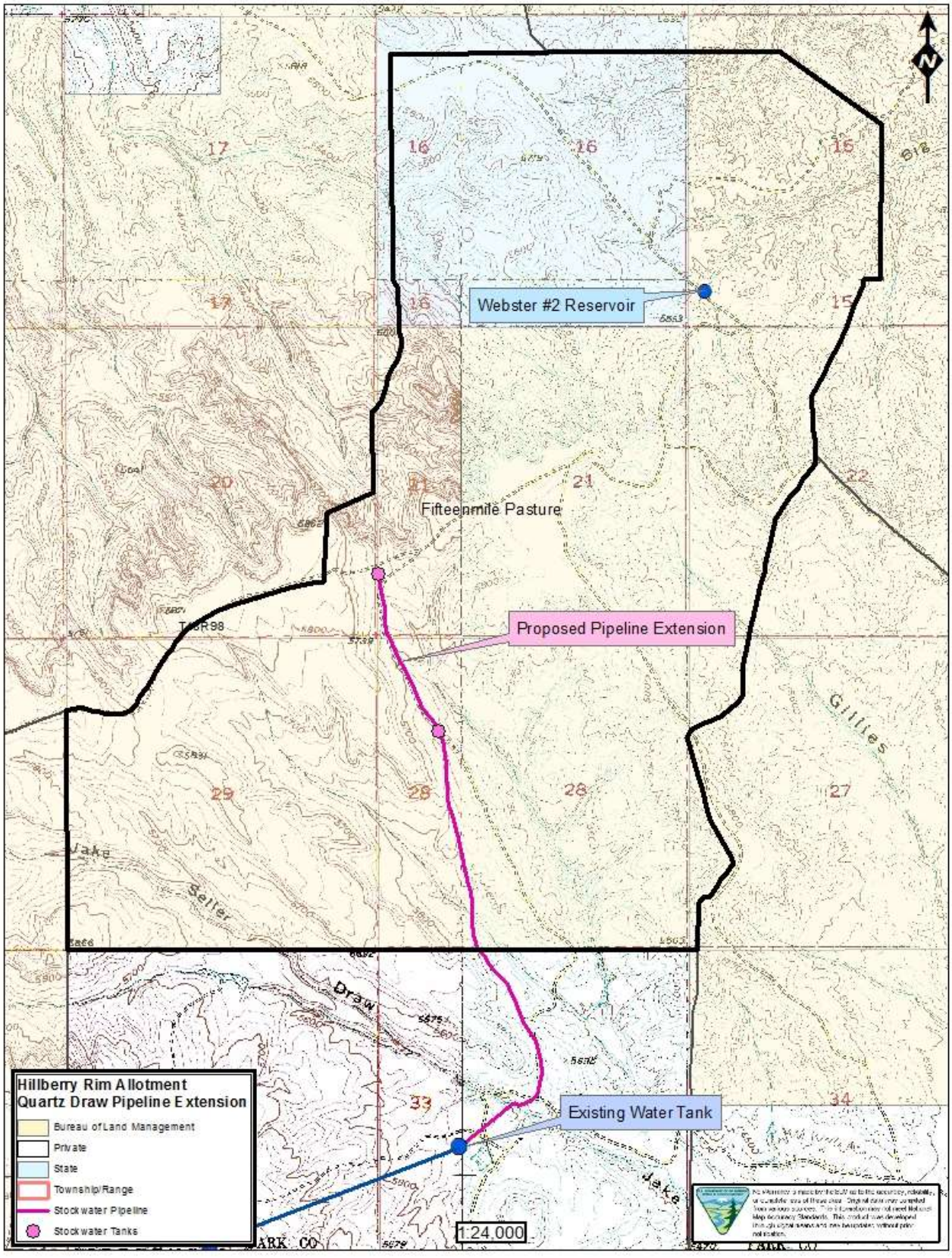
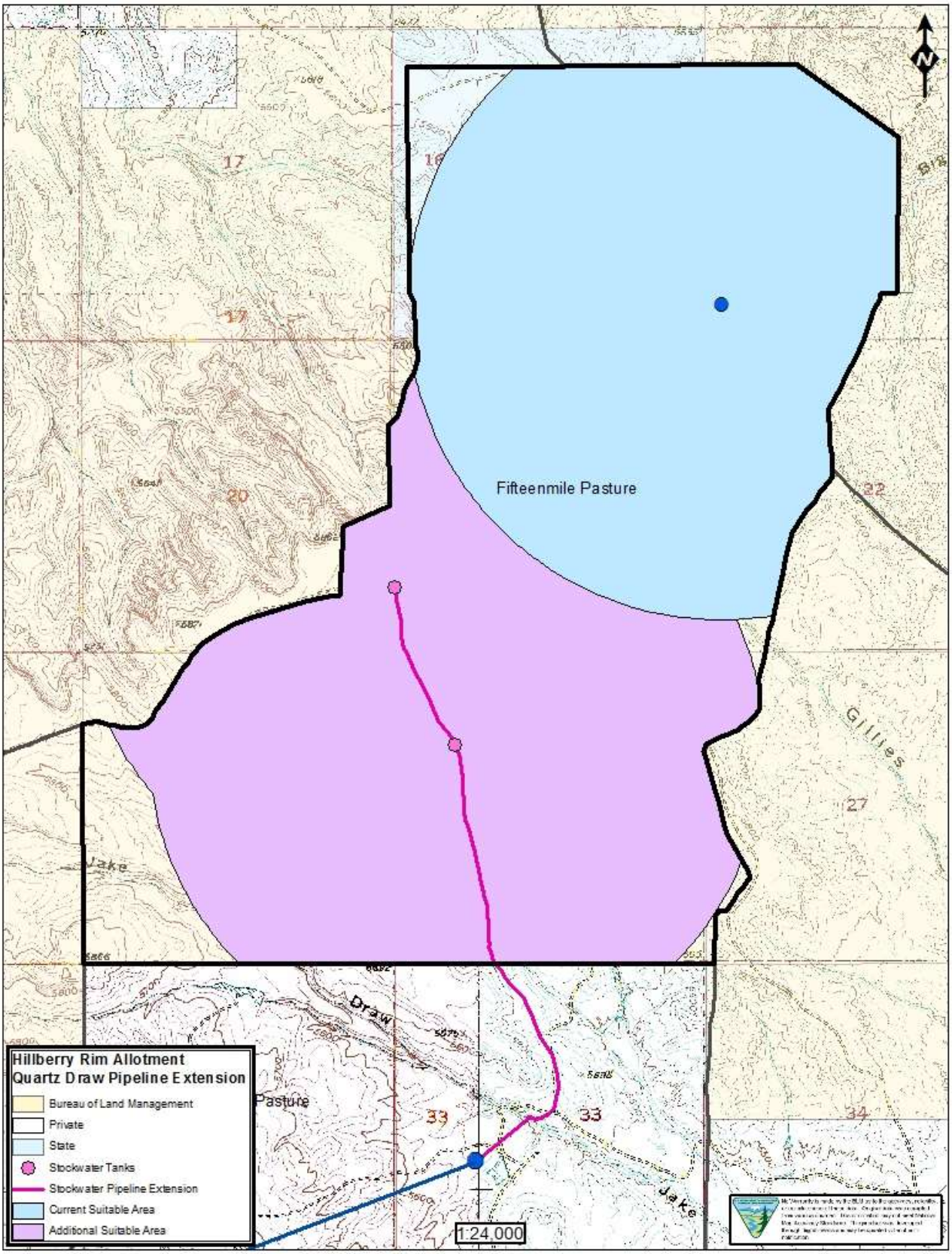
Map 1 – General Location



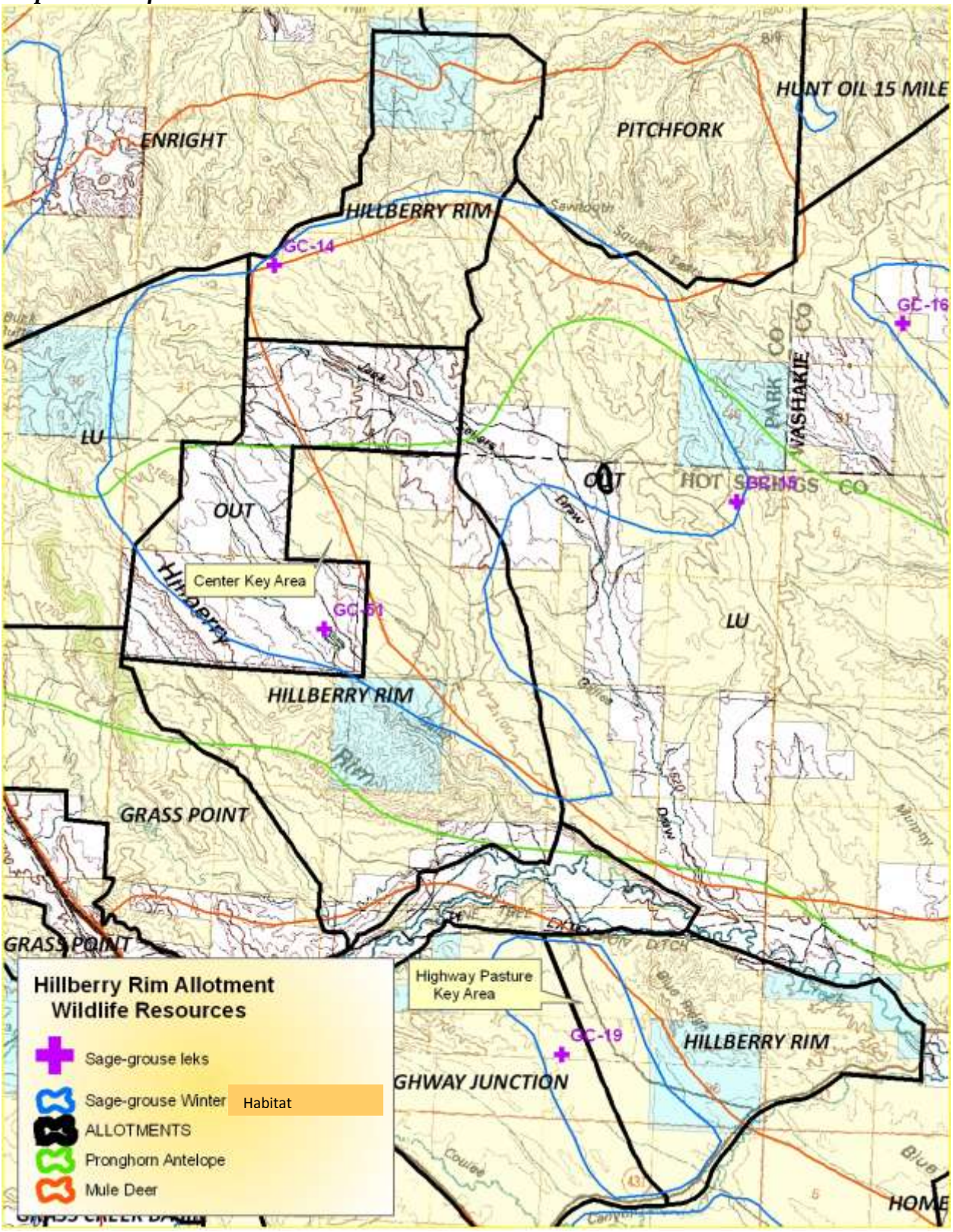
Map 2 – Proposed Project



Map 3 – Suitability



Map 4 - Wildlife Habitat Areas



Addendum 1 – Plan of Development for Project

Quartz Draw Pipeline Extension Project
Plan Of Development
April 14, 2015

1. Purpose and need
   The purpose of this pipeline installation is to provide water for livestock and wildlife in the Fifteenmile Pasture of the Hillberry Rim Allotment No. 00579.

   The pipeline would transport well water from the Quartz Draw Pipeline by gravity flow to 2 additional water tanks. The pipeline would be ripped in with a tractor to a depth of approximately 12 inches.

   The pipeline route would follow existing two track roads for approximately 0.7 miles, and would cross undisturbed public and private lands for approximately 1.4 miles. The tank locations would require minor leveling. The leveled area should not exceed more than a 10 foot radius from the center of the tank. The entire pipeline would be ripped in with temporary disturbance of an area approximately 12 inches wide by the length of the pipeline, 2.1 miles.

2. Project Location
   The location of the project is in Township 48 North and Range 98 West, Sections 21 and 28. See attached Maps 1 and 2.

3. Facility design factors
   The pipeline would be transporting nontoxic well water. The pipe would be at a depth of approximately 12 inches. The pipeline would be constructed using 1 ½" High Density Polyethylene (PE 4710) SDR 5 through SDR 11.

   Water would be left in the pipeline during non-freezing periods. Tanks would use floats with overflows to regulate water level. Once tanks and pipeline are full water would remain at the well and the storage tank on deeded land. As water level in the tank decreases the float allows water from the storage tank and pipeline to fill the tank back to the desired level. Small animal escape ramps would be installed in the tanks.

4. Additional components of the Project
   The pipeline would not be connecting to an existing right of way. Depending on the success of the currently outlined project the pipeline could be extended to serve other parts of the Fifteenmile Pasture.

5. Government agencies involved

Federal agencies involved are the BLM and the NRCS (design of the existing Quartz Draw Pipeline). The Wyoming State Engineers Office would be involved concerning water rights.

6. Construction of the facilities
   The construction of the project would entail the following elements:
   - The hauling of pipe, water tanks, and supplies as well as the ripping in of the pipeline and setting of the tanks would all be done with a pickup truck and rubber tired tractor.
   - The construction operation consists of hauling the water tanks and poly pipe to each site and then starting at the tank at the end of the existing pipeline. The 1 ½" poly pipe would be ripped in at a depth of approximately 12 inches. Once the pipe is in the tanks would be leveled and set including shut off valves, inlet piping and overflow piping. Shut off valves would be installed with float control.
   - There would be 1 to 2 people working on the project.
   - BLM contact would be Cameron Henrichsen.
   - There would be no toxic waste generated.

7. Resource Values and Environmental concerns
   This project would have no negative impact on resource values or environmental concerns.

8. Stabilization, Rehabilitation, and Restoration
   All equipment would be inspected and cleaned for noxious and invasive weeds prior to entering the project area. When plowing in the pipeline there would be minimal ground disturbance. After the ripping operation the tractor would be run back over the plowed area to compact and restore the area to its original profile. The areas disturbed by the operations would be monitored the next year for any weeds. Any found weeds would be treated and reported to the BLM.

9. Operation and Maintenance
   No new or expanded access would be required for the operation and maintenance of the system. All maintenance activities would be confined to the pipeline corridor. There would be no industrial waste or toxic substances generated or stored on the right of way. Inspection and Maintenance would be conducted on the ground. Maintenance of the pipeline and associated tanks would be the responsibility of the applicant.

10. Termination
    Upon need of termination the applicant would remove any above ground structures from BLM administered lands, i.e. tanks, if they become unusable at some point in the future. Pipe would remain in the ground.

Addendum 2 – Monitoring Plan

Quartz Draw Pipeline Extension Project
Monitoring Plan

Objective

The objective of this monitoring plan is to ensure that the area served by the Quartz Draw Pipeline Extension, specifically the Fifteenmile Pasture of the Hillberry Rim Allotment, receives no greater than moderate livestock grazing use (removal of 50% of current year's growth). Moderate livestock grazing use is further described as follows:

> The rangeland appears entirely covered as uniformly as natural features and facilities will allow. 15-25% of the number of current seedstalks of herbaceous species remain intact. No more than 10% of the number of low value herbaceous forage plants have been utilized.

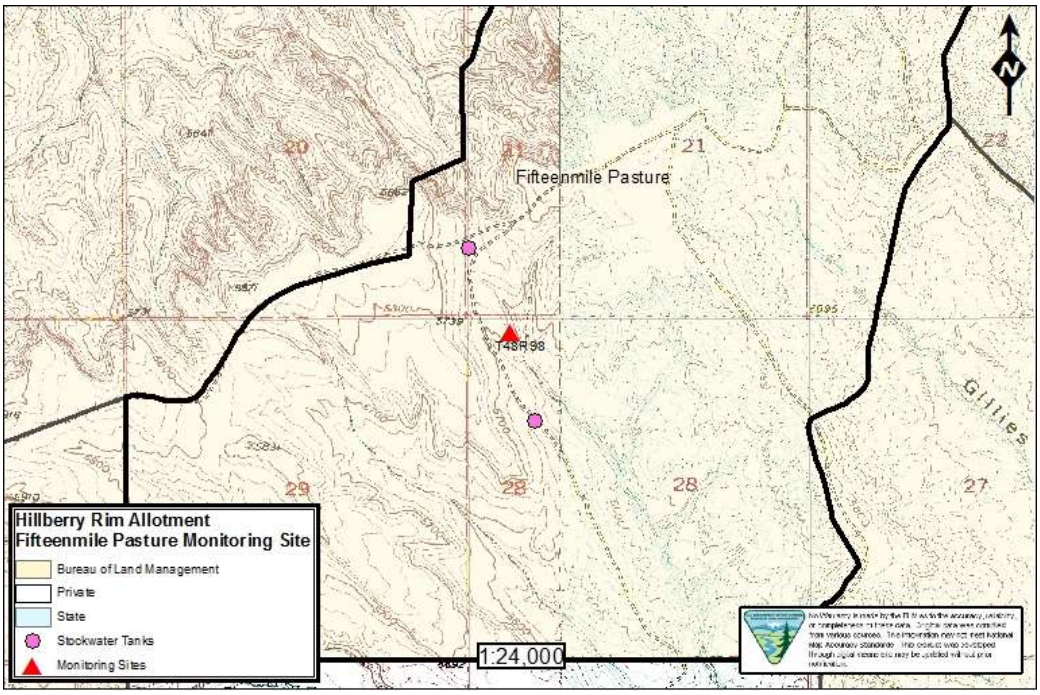
Monitoring Responsibilities

It is the responsibility of the cooperator to inform the BLM when livestock are turned into the Fifteenmile Pasture, and when they are removed from the pasture. This notification should occur within three days of livestock turnout or removal.

It is the responsibility of the BLM to assess forage utilization levels in the area served by the pipeline following livestock removal from the Fifteenmile Pasture.

Location of Data Collection

Forage utilization levels will be assessed at the Fifteenmile Pasture Monitoring Site located at T. 48 N., R. 98 W., Section 28 NW¼NW¼ (44° 06.464' X 108° 37.717'), illustrated on the map below:



Timing and Frequency of Data Collection

Forage utilization levels will be monitored at the Fifteenmile Pasture Monitoring Site within 2 weeks of livestock removal from the Fifteenmile Pasture. This data collection will occur each year for the first five grazing seasons after project completion. If forage utilization levels are consistently found to be at or below the moderate use level, data collection frequency may be reduced in future years, at the discretion of the BLM. If forage utilization levels are found to be consistently above the moderate use level, the BLM may impose time limitations on the use of the pipeline extension to ensure that livestock grazing use does not exceed the moderate use level.

Data Collection

Forage utilization data will be collected using the Landscape Appearance Method (Herbaceous), and recorded on the following data sheet. Photographs will be taken at the monitoring site, including overall views, and direct views of each Landscape Appearance class.

Monitoring Data Sheet

LANDSCAPE APPEARANCE METHOD (Herbaceous)

Unit Name _____ Pasture Name _____

Transect ID _____ Date _____ Observer _____

Animal Kind/Class _____ Season of Use _____ to _____ Sample Interval _____

Class (Midpoint)	Dot Tally	(#) Count	# X Midpoint	Description of Landscape Appearance
0-5% (2.5%)				The rangeland shows evidence of no grazing, or of negligible use.
6-20% (13.0%)				The rangeland has the appearance of very light grazing. The herbaceous forage plants may be topped or slightly used. Few current seedstalks and young plants are grazed.
21-40% (30.0%)				The rangeland may be topped, skimmed, or grazed in patches. The low value herbaceous plants are ungrazed and 60-80% of the number of current seedstalks of herbaceous plants remain intact. Fewer than 50% of the young plants are grazed.
41-60% (50.0%)				The rangeland appears entirely covered as uniformly as natural features and facilities will allow. 15-25% of the number of current seedstalks of herbaceous species remain intact. No more than 10% of the number of low-value herbaceous forage plants have been utilized.
61-80% (70.0%)				The rangeland has the appearance of complete search. Herbaceous species are almost completely utilized, with less than 10% of the current seedstalks remaining. Shoots of rhizomatous grasses are missing. More than 10% of the number of low-value herbaceous forage plants have been utilized
81-94% (88.0%)				The rangeland has a mown appearance and there are indications of repeated coverage. There is no evidence of reproduction or current seedstalks of herbaceous species. Herbaceous forage species are completely utilized. The remaining stubble of preferred grasses is grazed to the soil surface.
95-100% (97.5%)				The rangeland appears to have been completely utilized. More than 50% of the low-value herbaceous plants have been utilized.
	Totals			
Average Utilization = Midpoint Total / Count Total			%	